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DRAWING NOTICE

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TITLE

Step-By-Step Systems - No. 1 - Transmission Test Line Circuit - And Permanent Signal Release - Circuit For Connectors And - Switchmans Talking Line Circuit

DESCRIPTION

6.1 PROJECT: COSMIC TTS

6.2 This change for TELCO consideration is to add connecting information to COSMIC Frame Test and Jack Panel Circuit.

6.21 No equipment is required.

6.3 This change also covers: Improvements in design with no added service, testing, or maintenance features.

6.4 This B change does not require WECO notification to TELCO.

6.5 Transmission is not affected by changes in this issue.

6.6 Direct Current Drain Data is not affected by this issue.

6.7 Equipment Design Requirements are not affected.

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STEP-BY-STEP SYSTEMS
NO. 1
TRANSMISSION TEST LINE CIRCUIT AND PERMANENT SIGNAL RELEASE CIRCUIT FOR CONNECTORS AND SWITCHMAN'S TALKING LINE CIRCUIT

SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

1.01 This circuit provides for intercommunication between maintenance men in the switch room, for clearing permanent signals due to the calling party holding the connector and for one-way transmission tests of connectors.

2. GENERAL DESCRIPTION

2.01 The talking line is used when two testers at different locations cooperate on a test.

2.02 The transmission testing feature is used to verify the transmission capabilities of the connector under test.

2.03 The permanent signal circuit can be accessed to release connector held by the calling party.

SECTION II - DETAILED DESCRIPTION

1. TALKING LINE

1.01 The talking line is used by prearrangement when two testers at different locations cooperate on a test. No signaling features are provided.

1.02 Fig. 1 supplies talking battery to all talking stations and provides for connection to the local test desk when required.

1.03 Fig. 2 provides talking station jacks at switch frames, and, when permanent signal release and transmission testing is not required, at connector frames.

1.04 Fig. 16 provides an induction coil and battery supply circuit to operate with the talking station jacks per Fig. 17 located at traffic or message register racks or the IDF or with similar jacks at the traffic register cabinet.

1.05 A hand test set per Fig. 9 is used with the talking jacks of Fig. 2 and Fig. 5 and an operators set is used with the talking jacks of Fig. 17. A varistor is provided in Fig. 16 to reduce the intensity of acoustice shocks.

1.06 When Fig. 6, 13, or 15 is used, battery is supplied to the operators telephone set from retard coil (A) of Fig. 1 thru the induction coil of these figures, and the induction coil circuit is closed by local contacts of the jacks per Fig. 7.

2. TRANSMISSION TESTING

2.01 The key in Fig. 3 is operated to its (TRANS) position when transmission test are to be made on connectors in a hundred group other than that in which the transmission test line is terminated. By means of a patching cord described in the BSP on one-way transmission tests, the jack of Fig. 5 is patched to jacks 3 and 4 in the connector frame on which the "99" test line of each connector group is terminated. This connects 1 milliwatt testing power to the "99" terminal and transmission tests may be made by dialing this terminal from the transmission test circuit.

3. RELEASE OF CONNECTORS HELD BY THE CALLING PARTY

3.01 When connectors are held by the calling party if the subscriber loop is not too low in resistance the connectors may be released by operating the key of Fig. 3 to the (PS RLS) position and then patching the jack of Fig. 5 or 12 to the test jack of the connector using the low resistance cord of Fig. 8. This will result in connecting the permanent signal release circuit to the connector. This latter circuit will test the subscriber line for polarity and low resistance, and if conditions are favorable will apply battery and ground to shunt down the (A) relay of the connector releasing the same.

3.02 The detailed circuit operation is as follows. As the connector will test busy there will be ground on the sleeve which will be connected to the sleeve of the jack in Fig. 5 or 12 operating relay (ST).

3.03 If the permanent signal test circuit is not busy ground will be standing on lead "G" which on the operation of relay (ST) will cause relay (SO) to operate and lock to the sleeve of the connector through the back contact of relay (EC).

3.04 The operation of relay (SO) will cause the release of relay (ST). Ground from lead "G" will then, if no other (CH) relays in the test distributor control circuit, or the test line circuit to the test distributor are operated, cause the operation of relay (CH) which will lock up to relay (EC).

3.05 The operation of relay (CH) will operate relay (PS) disconnecting the jack of Fig. 5 from Fig. 3 and connecting it to the permanent signal test circuit, and also connecting grounds to leads "ST" and "BC".

3.06 This will cause the permanent signal test circuit to begin functioning, first removing ground from lead "G" then testing the subscriber line for polarity and resistance, and if the resistance is sufficient to insure against blowing fuses (approximately 50 ohms) to apply battery and ground which will shunt down the (A) relay of the connector.

3.07 This will remove ground from the sleeve releasing relay (SO). The release of relay (SO) will remove ground from lead "BC" giving an indication to the permanent signal test circuit that the connector has been released.

3.08 The latter circuit will then connect ground to lead "EC", operating relay (EC) and restoring the circuit to normal. If the connector is not released due to the fact that the test circuit found the resistance of the loop too low to apply the shunting battery and ground then the test circuit will complete its cycle connecting ground to lead "EC".

3.09 This will operate relay (EC) which will lock to the sleeve of the connector and will release relay (CH) and in turn (PS).

3.10 The object of slow release relay (ST) and slow operate characteristics of relays (SO), (CH), and (PS) is to guard against plug fumbling when patching the jack of Fig. 5 to the test jack of the connector. In order that proper tests of the subscriber line may be made it is necessary that the tip and ring leads of the patching circuit be completed by the time relay (PS) operates.

3.11 As the test man is observing the action of the connector no signal is necessary to indicate whether or not the connector releases. If the connector does not release after an interval of approximately 10 seconds following the completion of the patch it is an indication either that the subscribers loop is too low in resistance, that the permanent signal test circuit is busy or that there is trouble in the circuit.

4. USE OF JACKS PER FIGS. 12 AND 14

4.01 When a switchman's talking line is available in an office, but does not provide for transmission testing or permanent signal release, Fig.s 3, 4, and 12 of this circuit may be used to provide these features.

4.02 Where one of the switchman's talking lines now rated "Mfr. Disc." is in use, and talking station jacks for an added traffic register are required, they are provided per Fig. 14 of this drawing.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

1.01 Maximum conductor loop resistance from the most remote jack at the connector frame to permanent signal test circuit, 4 ohms.

2. FUNCTIONAL DESIGNATIONS

2.01 Relays

Designation	Meaning
CH	Chain
EC	End Check
PS	Permanent Signal
SO	Sleeve Releasing

Designation	Meaning
ST	Start

3. FUNCTIONS

3.01 To provide a talking circuit for use between switch frames, message register racks and traffic register racks.

3.02 To provide for clearing permanent signals due to the calling party holding the connector.

3.03 To provide for one-way transmission tests of connectors in conjunction with transmission testing circuit.

3.04 To provide a talking circuit from AB toll transmission selector, toll transmission selector and coin control selector frames by use of a subscriber line circuit in the dial office.

4. CONNECTING CIRCUITS

4.01 When this circuit is listed on a keysheet the connecting information thereon is to be followed.

(a) Test Line to 12C Test Desk - SD-31400-01.

(b) Test Distributor Control Circuit - SD-31401-01.

(c) Permanent Signal Test Circuit - SD-31402-01.

(d) Test Line Circuit for One Way Transmission Testing - SD-96000-01.

(e) Key and Lamp Circuit in No. 14 Local Test Desk - SD-90050-01 (typical).

(f) Connector Test Line - SD-31653-01.

(g) Telephone Circuit Local Test Desk No. 16 - SD-1C380-01.

(h) Local Subscriber Line Circuit in Dial Office - SD-31531-01.

(i) (For Fig. 14 - A&M Only.)

(j) Switchman's Talking Line - SD-31619-01.

(k) Switchman's Talking Line - SD-31231-01.

(l) Switchman's Talking Line - ES-30428-01.

(m) Miscellaneous Circuit - SD-32153-01.

(n) Traffic Register Cabinet Circuit - SD-95531-01.

(o) Automatic Trunk Test Circuit - SD-32006-01.

(p) Announcement System No. 6A Control Circuit - SD-95608-011.

(q) Traffic Usage Recorder Circuit - SD-95738-01.

(r) Miscellaneous Circuit for Step-by-Step Intertoll with CAMA - SD-32272-01.

(s) Large MJ Mobile Radio Telephone System - Stile Circuit - SD-2R017-01*.

(t) Manual OGT Test Frame - SD-32349-01.

(u) Cosmic Test and Jack Panel Circuit - SD-2P016-01.

(v) Miscellaneous Circuit - SD-35035-01.

5. MANUFACTURING TESTING REQUIREMENTS

5.01 This trunk circuit shall be capable of performing all the functions or working limits specified in SECTION III - REFERENCE DATA, and meeting all the requirements of the Circuit Requirements Table and Timing Requirements Table.

SECTION IV - REASONS FOR REISSUE

B. Changes in Apparatus

B.1	Superseded	Superseded By
	"A" Jack code 396 Fig. 7 "S" Option	"A" Jack code 234A Jack with a 168A Adapter Fig. 7 "S" Option
	"B" Jack code 396 Fig. 7 "S" Option	"B" Jack code 234A Jack with a 168A Adapter Fig. 7 "S" Option

Superseded	Superseded By
A Varistor 33L Fig. 6, 16	A Varistor 33LR Fig. 6, 16

This change made on a line out basis.

D. Description of Changes

D.1 The A and B Jacks of Figure 7, Option S, are changed from code 396 to a code 234A Jack with a 168A Adapter, on a line out basis.

D.2 "NO. 14" is removed from Note 102 on line Option "Z" is shown on.

D.3 "NO. 14" is removed from the connecting information, Figure 1.

D.4 Cosmic Test and Jack Panel Circuit SD-2P016-01 is added to Connecting Circuits.

D.5 Telephone Circuit Local Test Desk No. 16 SD-1C380-01 added to Connecting Circuits.

D.6 Changed Figs. 51 and 59.

D.7 Option "F" is rerated "Mfr. Disc" and Note 111 is added.

D.8 In Note 102 Option "F" is changed to Option "E".

D.9 Miscellaneous Circuit SD-35035-01 is added to Connecting Circuits.

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